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Supplementary material

An efficient yttrium catalysed version of the “Aufbaureaktion” for the synthesis of terminal functionalised PE

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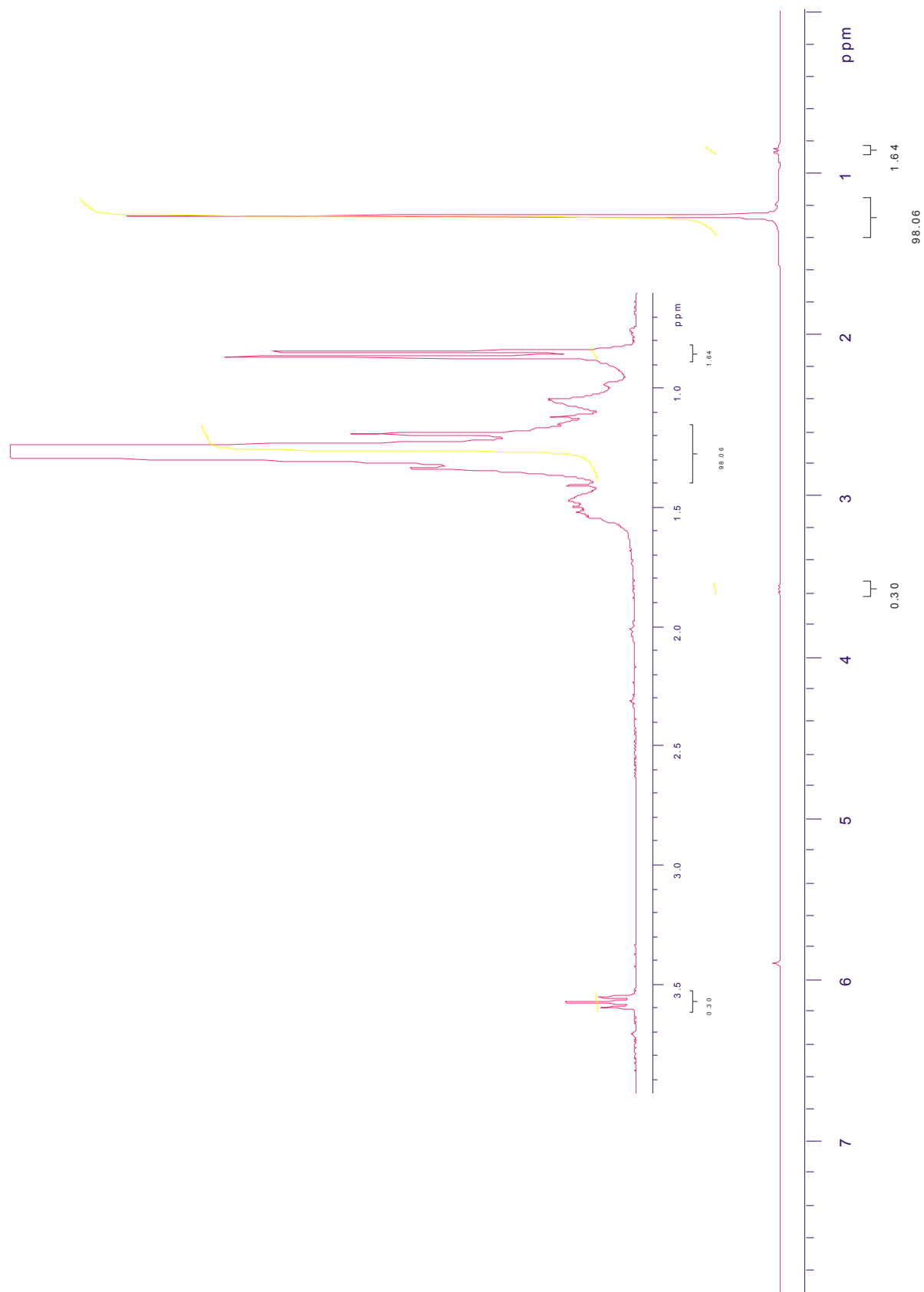


Figure 1. ^1H -NMR spectrum ($\text{C}_2\text{D}_2\text{Cl}_4$, 393K) of PE yielded after polymerization with TIBA chain transfer reagent and oxidative work up ($M_w = 2160$).

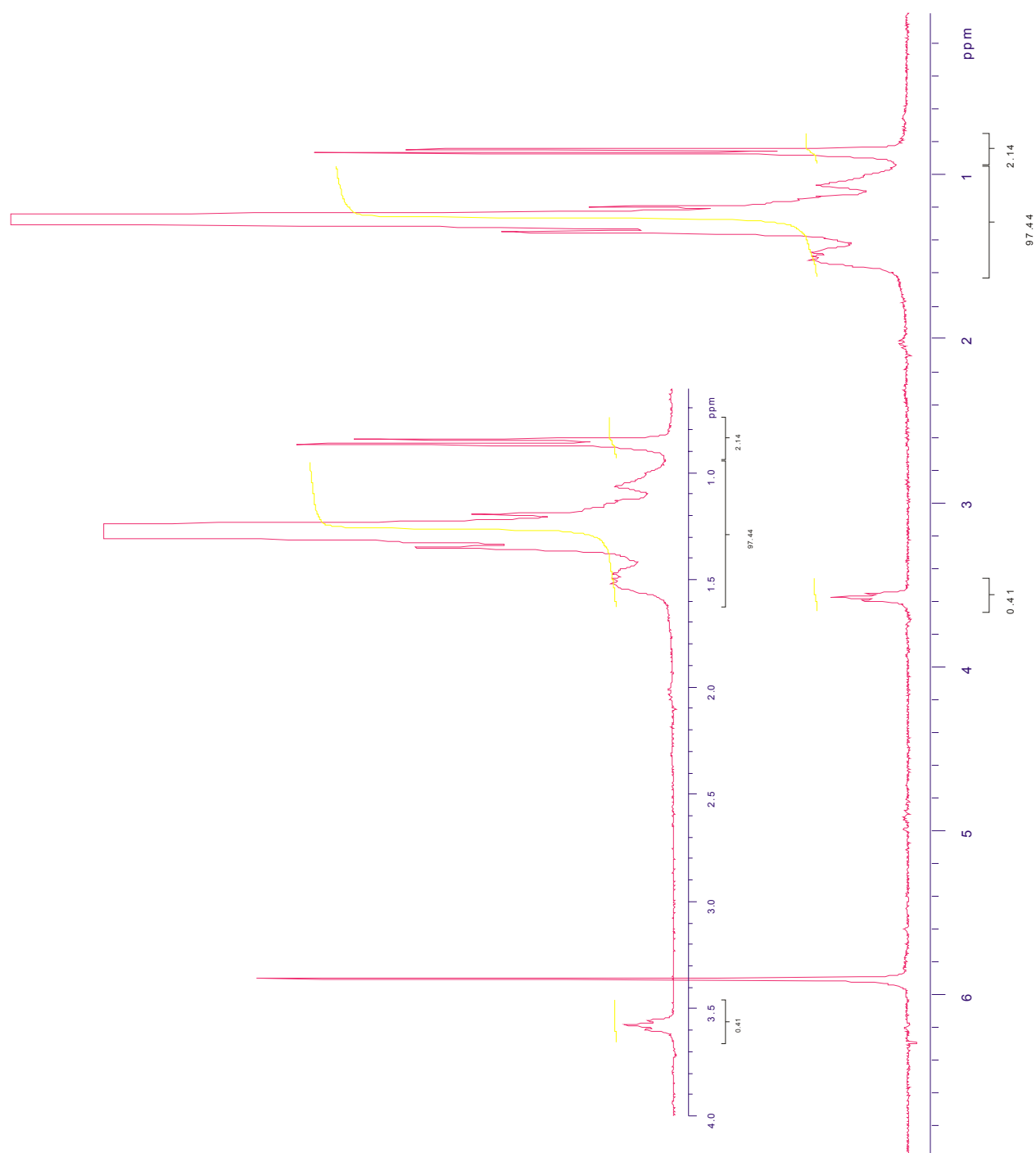


Figure 2. ^1H -NMR spectrum ($\text{C}_2\text{D}_2\text{Cl}_4$, 393K) of PE yielded after polymerization with TIBA chain transfer reagent and oxidative work up ($M_w = 1460$).

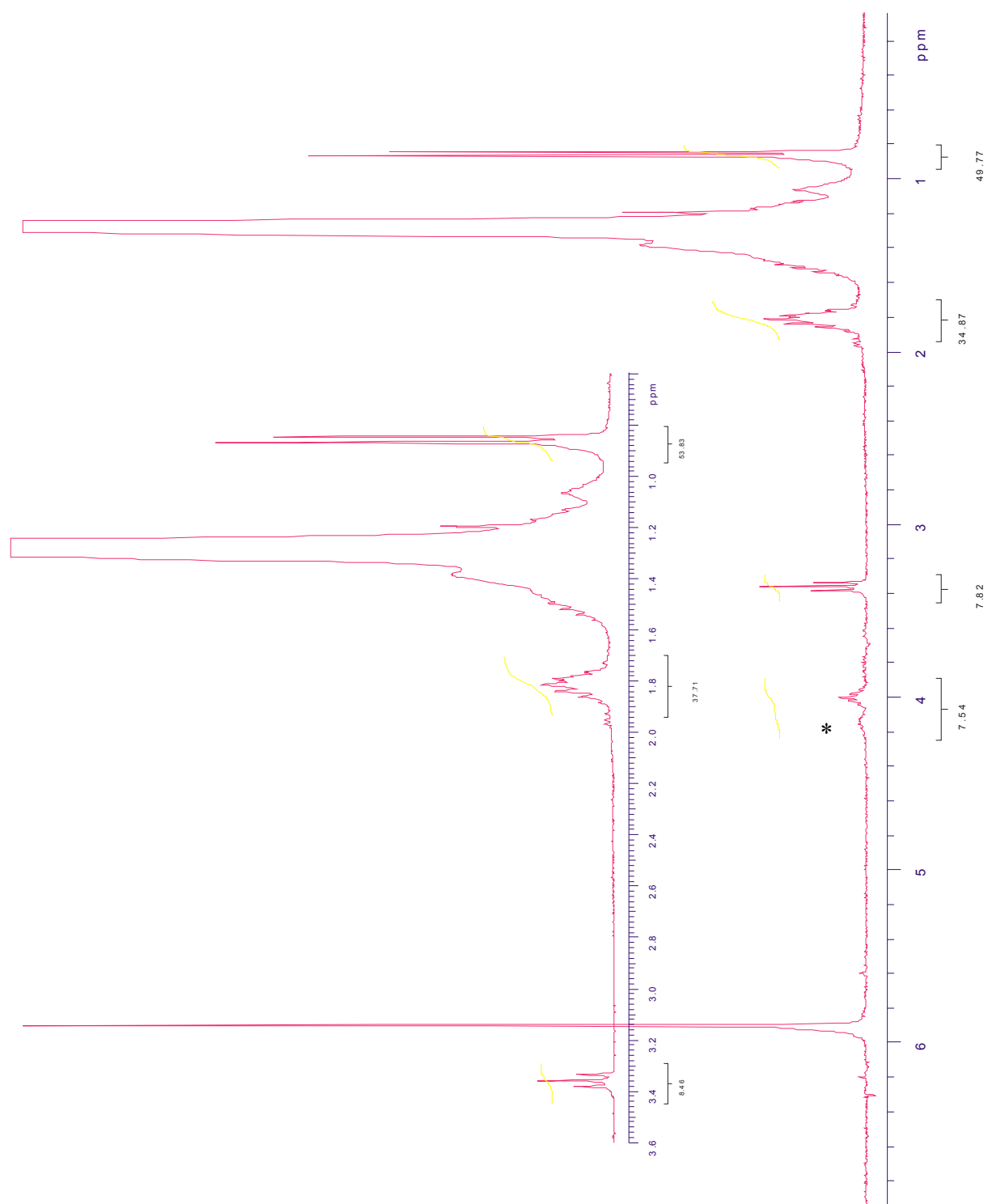


Figure 3. ^1H -NMR spectrum ($\text{C}_2\text{D}_2\text{Cl}_4$, 393K) of bromo terminated polyethylene.*
unidentified impurity

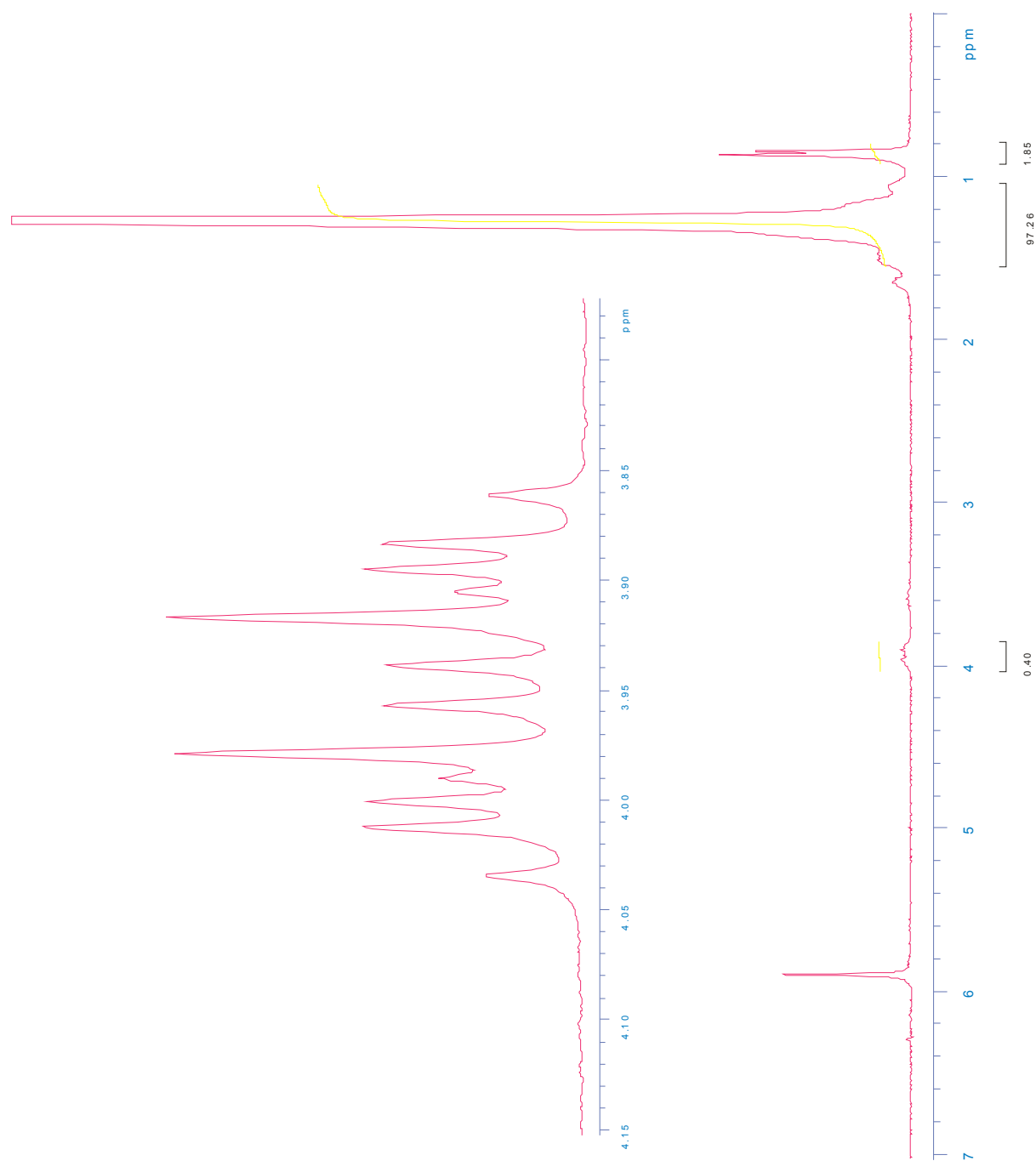


Figure 4. ^1H -NMR spectrum ($\text{C}_2\text{D}_2\text{Cl}_4$, 393K) of chloro sulfite terminated polyethylene.

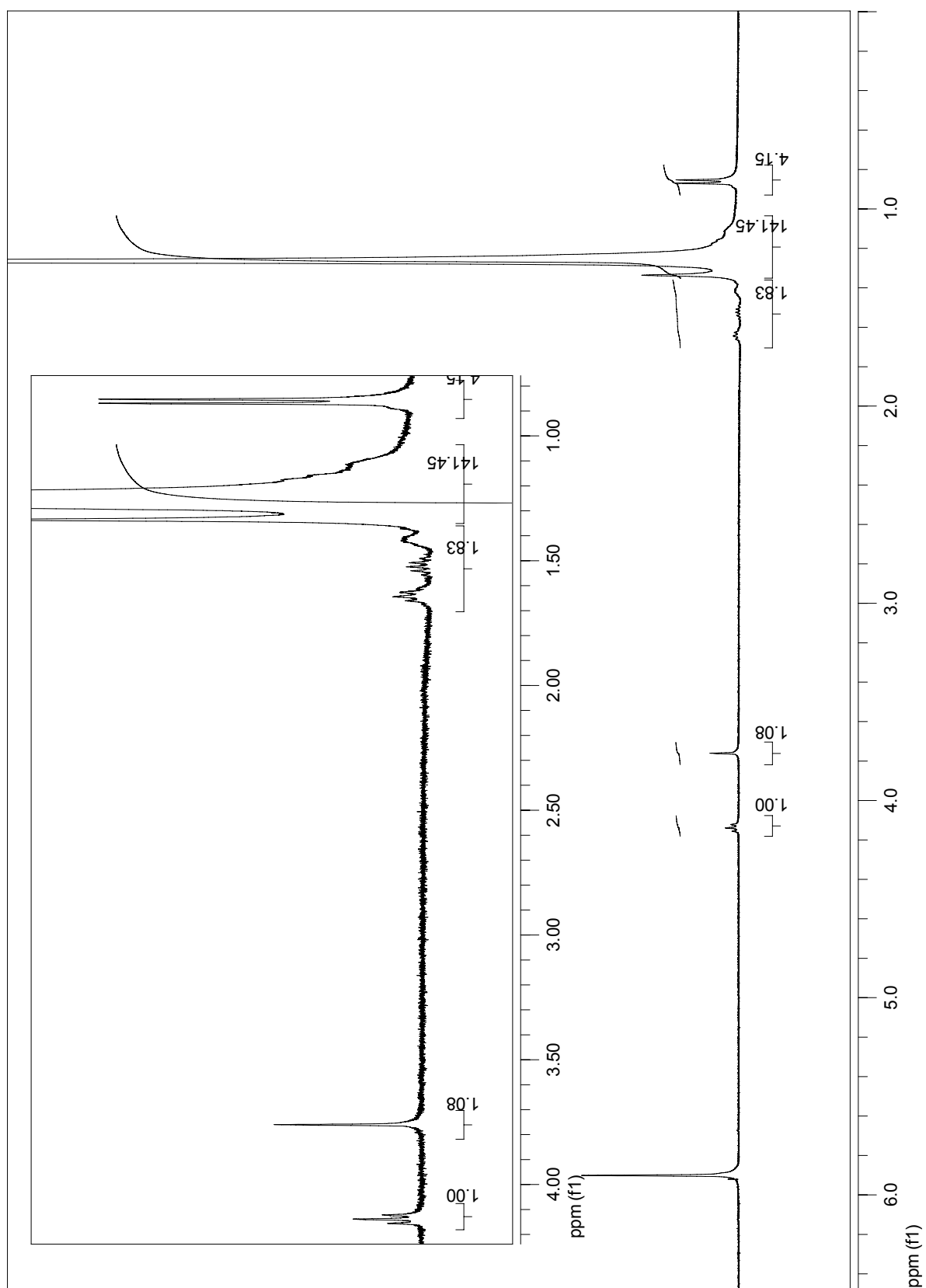


Figure 5. ^1H -NMR spectrum ($\text{C}_2\text{D}_2\text{Cl}_4$, 393K) of α -bromo-acetate terminated polyethylene.

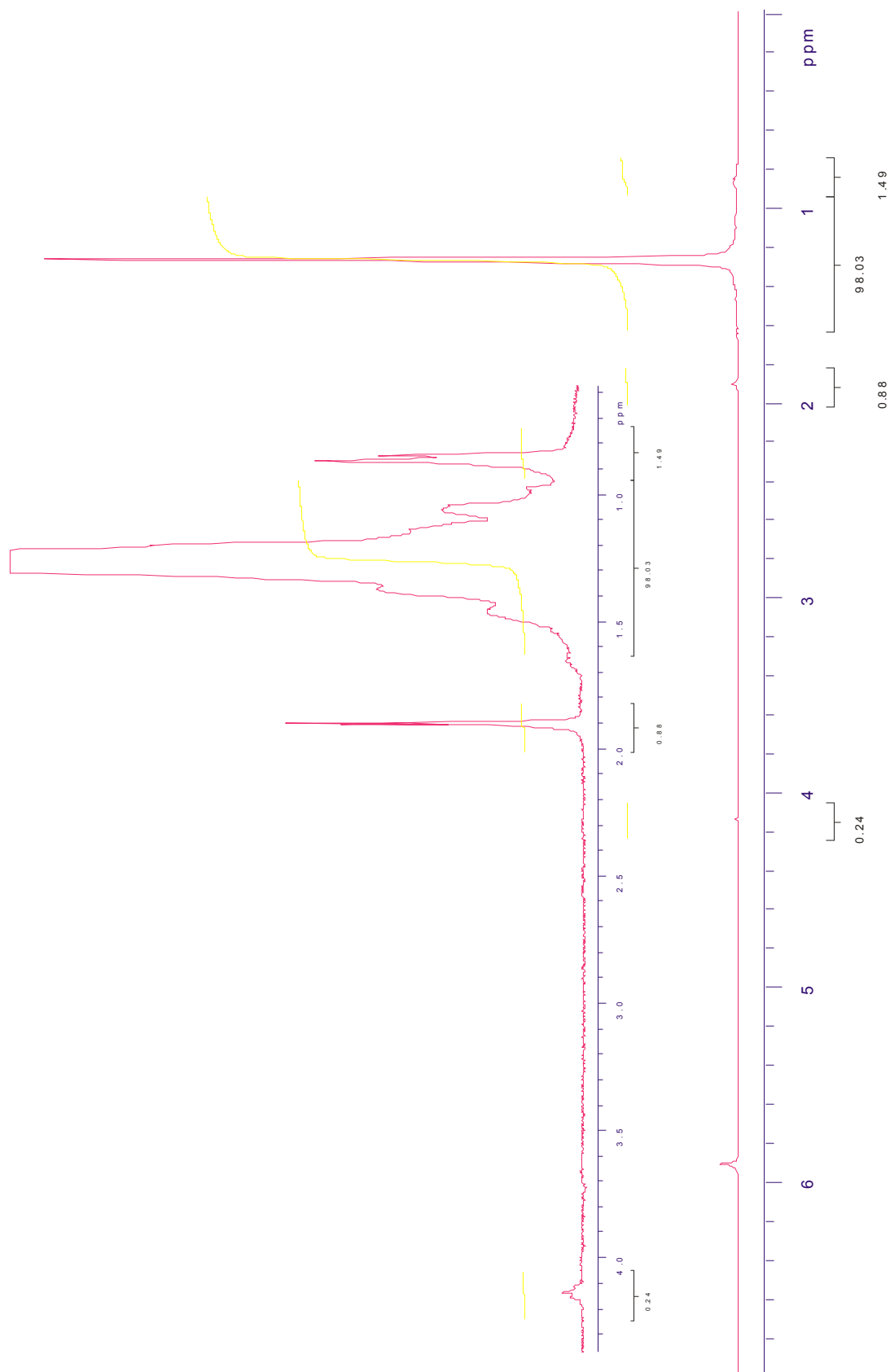


Figure 6. ^1H -NMR spectrum ($\text{C}_2\text{D}_2\text{Cl}_4$, 393K) of α -bromo-isobuturate terminated polyethylene.

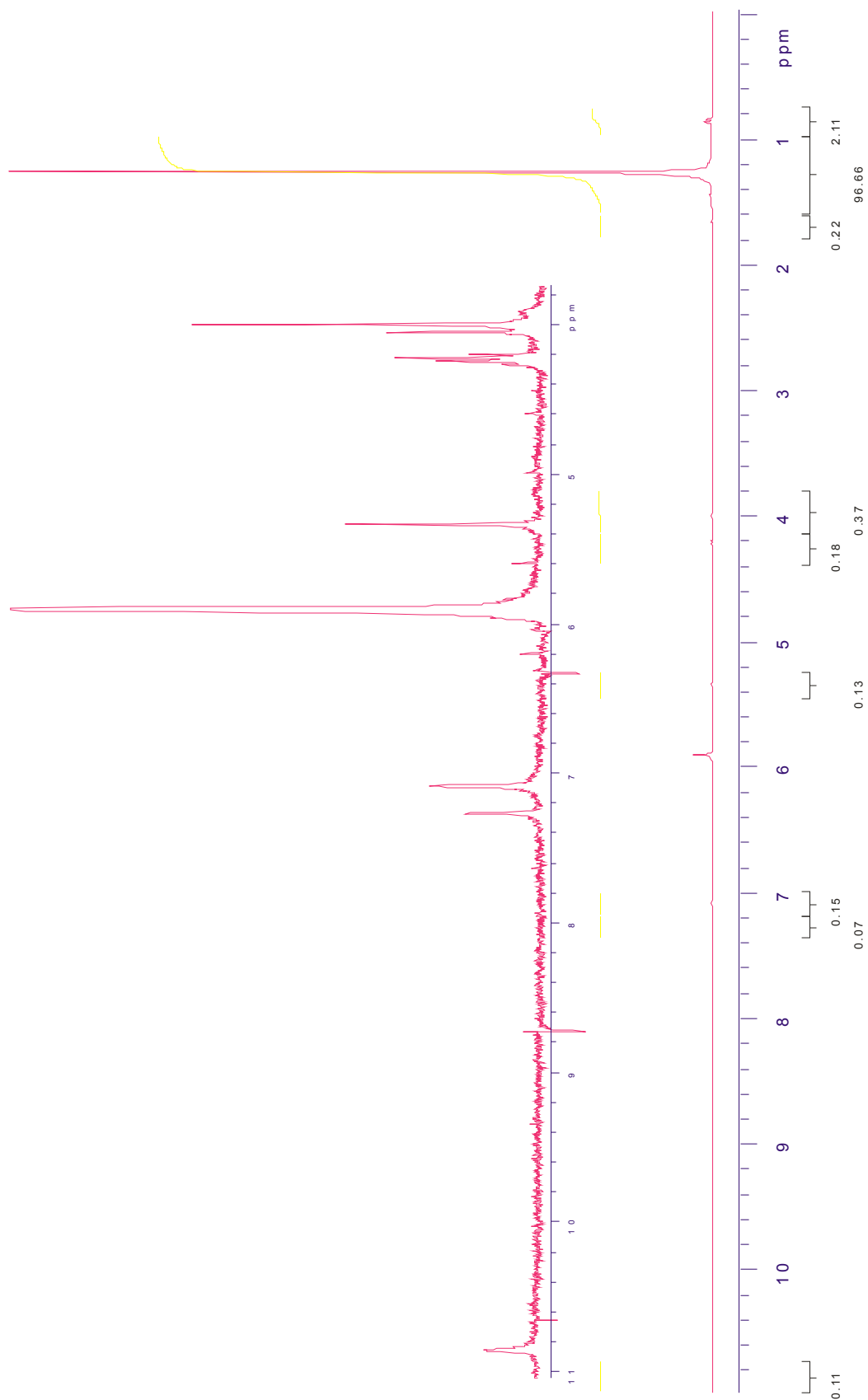


Figure 7. ^1H -NMR spectrum ($\text{C}_2\text{D}_2\text{Cl}_4$, 393K) of 1-(1-PE-oxycarbonyl-methyl)-3-methyl-imidazoliumbromid.

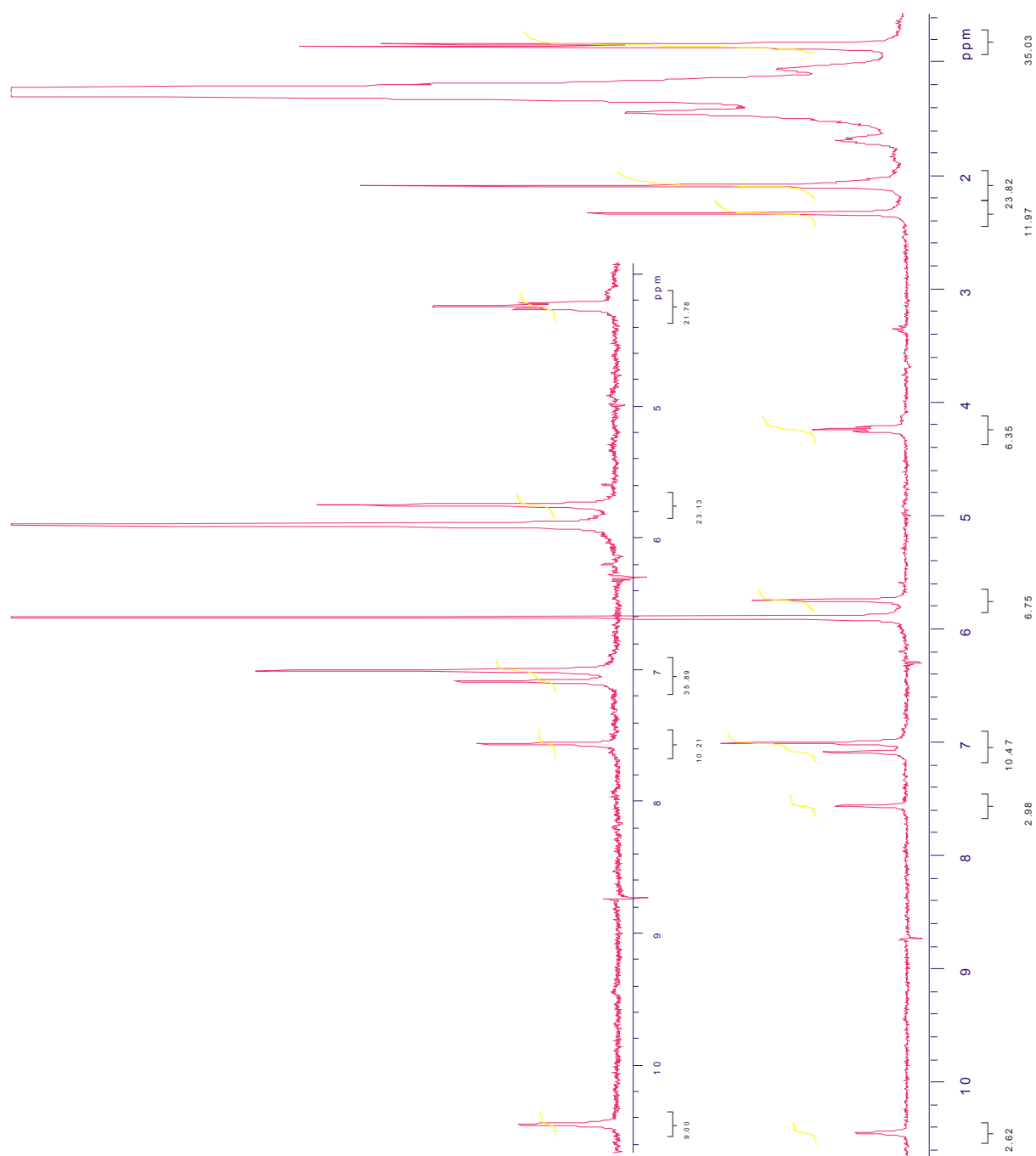


Figure 8. ^1H -NMR spectrum ($\text{C}_2\text{D}_2\text{Cl}_4$, 393K) of 1-(1-PE-oxycarbonyl-methyl)-3-(2,4,6-trimethyl-phenyl)-imidazoliumbromid.

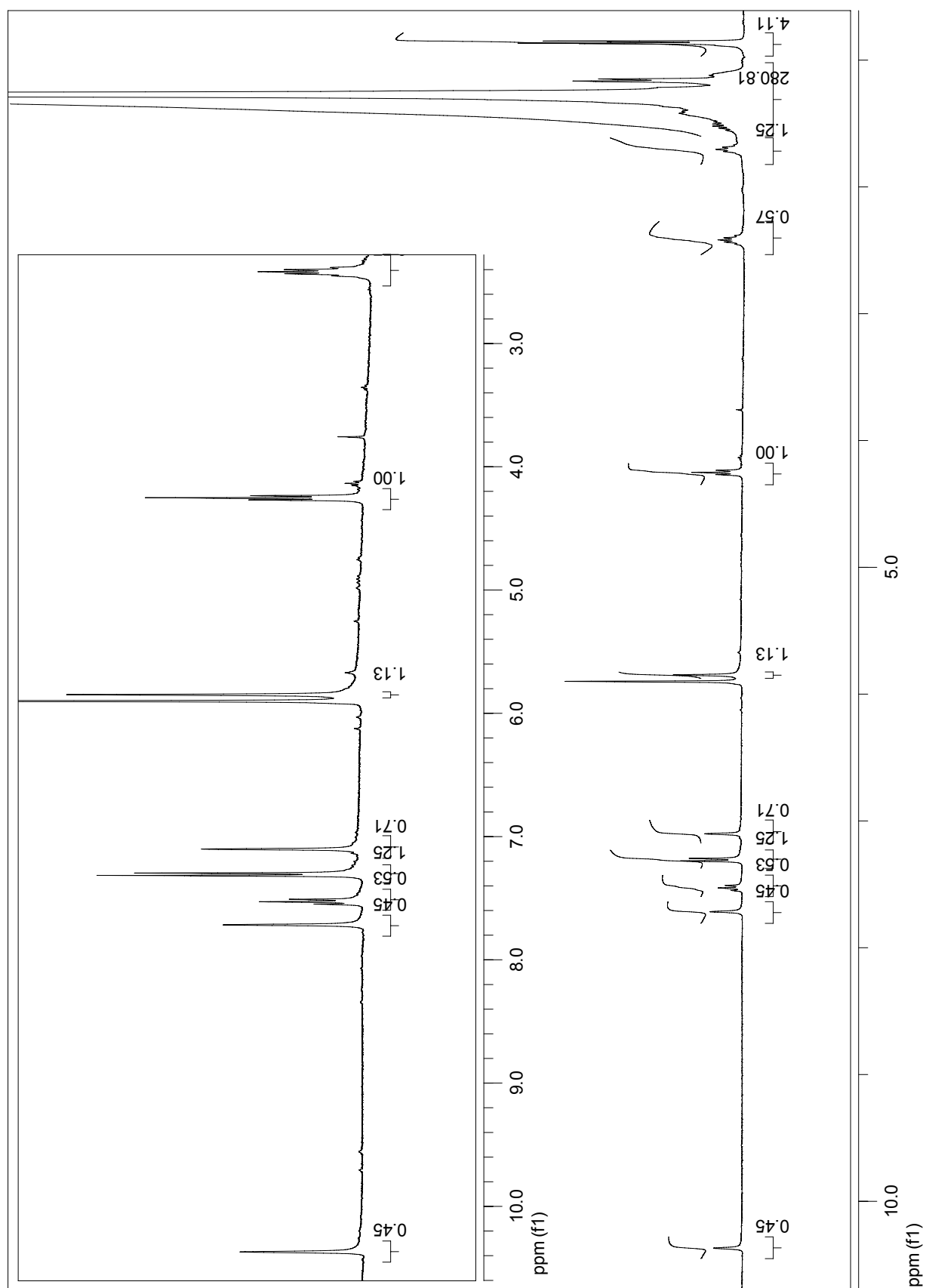


Figure 9. ^1H -NMR spectrum ($\text{C}_2\text{D}_2\text{Cl}_4$, 393K) of 1-(1-PE-oxycarbonyl-methyl)-3-(2,6-di-*iso*-propyl-phenyl)-imidazoliumbromid.